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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,873	07/14/2003	Hwan Koo Lee	1293.1814	3436
21171	7590	01/04/2006	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			RODEE, CHRISTOPHER D	
			ART UNIT	PAPER NUMBER
			1756	

DATE MAILED: 01/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/617,873	Applicant(s) LEE ET AL.	
	Examiner Christopher RoDee	Art Unit 1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 10-12 and 15-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-12 and 15-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8 November 2005 has been entered.

Claim Objections

Claim 6 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The formula (10) fails to further limit formula (2) in claim 1 because the specific structure of formula (10) is not included within the scope of claim 1. Applicants state in the recent response that the amendments to claim 1 resolve this issue but the Examiner does not see how the Formula (2) includes Formula (10) within its scope. Clarification is requested.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 1-7, 10-12, and 15-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The instant claims have been amended to specify a characteristic of the photoreceptor. Specifically, the claims now state, "said electrophotographic photoreceptor is an electrophotographic photoreceptor for a wet developing method that suppresses a decrease in charged electrical potential and dark decay upon repeated use." This limitation is indefinite because it is unclear how the photoreceptor is used in the wet development method. There are a variety of wet development methods such as where the entire photoreceptor is immersed in a liquid developer bath and the liquid evaporates off leaving a toner image (see Rubin in US Patent 3,128,683), where one photoreceptor surface is brought near the surface of the liquid developer and particles migrate from the liquid to the photoreceptor followed by evaporation (see Mayer *et al.* in US Patent 2,913,353), where the liquid comprises a solid material at room temperature and is melted during development (see Watanabe *et al.* in US Patent 5,229,235), and where liquid developer is suspended in air and comes into contact with paper but the development liquid never actually contacts the photoreceptor (see Jacob in US Patent 2,752,833). Greig in US Patent 3,053,688 also shows that siloxane carrier liquids are effective in liquid development methods. In each embodiment discussed above the photoreceptor undergoes very different treatments and it is unclear which of these methods (or others not discussed here) is limiting the claims. The effects of a heated, room temperature-solid developer on a photoreceptor would be very different from a development method where the liquid never actually touches the photoreceptor. Yet, both are wet development methods. Because the photoreceptor is being limited by the manner in which it is used in the wet

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development method and this method is unclear, the scope of the claimed photoreceptor is similarly indefinite.

Claim Rejections - 35 USC § 102

Claims 1-6, 10, 15, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 07-281456. An English language machine translation of the JP document accompanied the Office action of 25 January 2005.

As discussed in the prior Office actions, the JP document discloses an electrophotographic photoreceptor having a conductive base and a photosensitive layer having a photoconductive material, a binder resin of the Formula I and a cresol compound given by the Formula II (¶¶ [0010] – [0013]; Abstract). The binder resin is a polyester having biphenyl fluorenyl units while the cresol compound meets the requirements of the instant claims noting the methyl group and the substituting tert-butyl groups in the compound of ¶ [0015]. Cresols that are particularly pertinent to the instant claims include 2, 6-di- tert-butyl-p-cresol, 2,6-di-tert-butyl-m-cresol, 2,4-di- tert-butyl-o-cresol, 2,4 di-methyl-6-tert-butyl-phenol, 2,2'-methylenebis (6-tert-butyl-p-cresol), 4,4'-methylenebis (6-tert-butyl-o-cresol), and thio-bis (6-tert-butyl-m-cresol). Example 1 presents a photoreceptor having a conductive drum support and a photoconductive layer with 10 parts of a hydrazone charge transport material, 10 parts of a resin given by the formula 6, and 1 parts of a cresol (2,6-tert-butyl-p-cresol; see formula (9) in claim 6) meeting the formula of the instant claims. The photoconductor of the invention is placed in a laser printer (¶ [0051]).

Applicants traverse this rejection because there is no disclosure that this photoreceptor can be applied to a wet development method. Applicants state that certain improvements are

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obtained in charged electrical potential and dark decay because the photoreceptor is resistant to aliphatic hydrocarbon solvents.

The Examiner has carefully considered applicants' remarks and has reviewed the applied JP document in detail. Although the JP document does not disclose the wet development method limitation of the instant claims, applicants are reminded that the claims are directed to a photoreceptor (i.e., an article) not to the method of using the photoreceptor. The noted limitation appears to provide a functional limitation to the claims (i.e., the photoreceptor has certain characteristics when wet developed), however because the limitation is indefinite for the reasons given in the section 112 rejection above, it is unclear how the limitation further defines the claimed photoreceptor. The response states that hydrocarbon carrier liquids contact the photoreceptor in wet development but as seen in Watanabe, Jacob, and Greig no hydrocarbon solvent is required to contact the photoreceptor (see Watanabe's carnauba wax in col. 5, l. 5; Jacob's Figure 1; & Greig's siloxane liquid). The remarks are not persuasive because the method of using the photoreceptor is not limited in the manner asserted in the response, and, as discussed above, the claims are indefinite.

Further, even if the new limitation were clear and in compliance with section 112, it appears that the photoreceptor would inherently have the requisite liquid development characteristics because the same polyester binder resin and antioxidant is present in the prior art photoreceptor layer as in the instant claims. Applicants' remarks and the specification indicate that it is the specific polyester having biphenyl fluorenone groups that permits the wet development characteristics to be obtained (see response p. 22). If the composition of the photoreceptive layer provides the liquid development characteristics claimed and the JP reference discloses the same photoreceptive layer (or at least one falling within the scope of the claims) there is a *prima facie* reason to expect that the reference inherently has the same liquid

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development characteristics claimed. “[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art’s functioning, does not render the old composition patentably new to the discoverer.” *Atlas Powder Co. v. Ireco Inc.*, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999).

“To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.” *In re Robertson*, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). “In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990).

In the instant case, the Examiner has provided reasoning for the artisan to believe that the claimed liquid development characteristics are inherently present for the JP reference’s photoreceptor. The Examiner has noted that the composition of the photoreceptive layer in the JP reference falls within the scope of the composition for the photoreceptive layers of the claims. Combining this disclosure with the specification and applicants’ remarks, the Examiner has provided sufficient scientific and technical reasoning to assert inherency.

“[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency’ under 35 U.S.C. 102, on prima facie obviousness’ under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same.” *In re Fitzgerald*, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980). Applicants have not provided any evidence to show that the JP document’s photoreceptor does not have the characteristics claimed.

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Additionally, the Examiner notes that the instant claims do not specify that the biphenyl fluorenone units consist of the formula (1) as asserted in the response.

The rejection is still seen as proper and is maintained.

Claim Rejections - 35 USC § 103

Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 07-281456 in view of *Handbook of Imaging Materials*. New York: Marcel-Dekker, Inc. (11/2001) pp. 145-164 to Diamond.

This rejection was presented in the last Office action. Applicants traverse this rejection for the same reasons as given above over the JP reference alone under section 102. The traversal is not found persuasive because the JP document does disclose a polyester binder resin according to the formula for the same reasons as given above, which would be expected to give the same properties to the photoreceptor as claimed. The rejection is proper and is maintained.

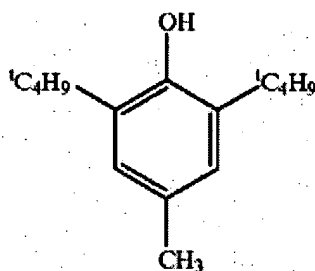
Claims 1-7, 10-12, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsukawa *et al.* in US Patent 6,187,493 in view of Kanamura *et al.* in US Patent 6,043,334.

Katsukawa discloses a photoreceptor having a conductive support and a photosensitive layer on the support. The photoconductive layer contains a hole and/or electron transferring substance and a polyester resin having a fluorenyl repeating unit given by the formula (1) (Abstract). Additives such as antioxidants can also be used (col. 44, l. 1-4). The photosensitive layer can be of either a single layer or a multilayer (col. 42, l. 48 – col. 43, l. 2). Useful supports are in the shape of a drum (col. 44, l. 60-61). Specific polyesters for the binder resin are

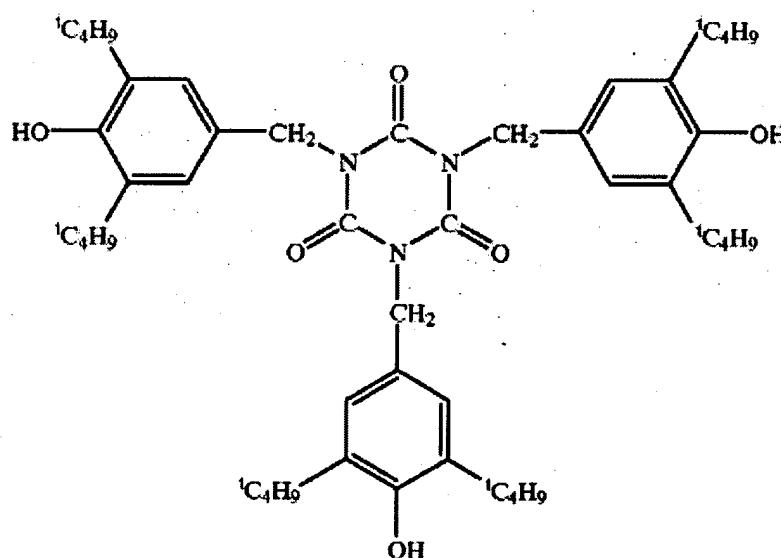
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disclosed in the Reference Exmaples (cols. 45-48). The photoreceptor is placed in an electrophotographic imaging device in the Examples (see, col. 50, l. 2-8; col. 58, l. 23-34; col. 67, l. 40-46

Katsukawa does not disclose the antioxidants of the instant claims, but Kanamura does disclose photoreceptors of single layer or dual layer type having a binder resin with repeating fluorenyl units (Abstract; col. 44, l. 8-23). The photoreceptors have a conductive support and a photosensitive layer containing a binder resin (col. 44). The photosensitive layers of the photoreceptor contain antioxidants (col. 196, l. 40). The amount of the antioxidant is from 0.01 to 10 % by weight (col. 198, l. 34-36). Useful antioxidants are disclosed such as



col. 198



It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a known photoreceptor antioxidant such as those of Kanamura in the invention of Katsukawa because Katsukawa teaches that antioxidants are usefully included but does not specify any antioxidants. The artisan would look to other references in the art for useful antioxidants and Kanamura discloses a specific group of antioxidants that are known to be effective in photoreceptors. The artisan would have found it obvious to optimize the amounts of the antioxidants in order to obtain the antioxidant effect in the produced photoreceptor.

Applicants traverse this rejection because the claims have been amended to state, "wherein the photoreceptor layer comprises polyester resins as binder resin having biphenyl fluorine units consisting of the following chemical Formula (1)." The Examiner has reviewed the claims but finds no such limitation in the claims under review. Thus, this line of argument is not persuasive. The Examiner must note that Katsukawa does disclose polyesters having the requisite units of the Formula (1).

Applicants also traverse the rejection because the references do not specify the wet development method characteristics claimed. As discussed above, the claims are directed to a photoreceptor (i.e., an article) not to the method of using the photoreceptor. The noted limitation appears to provide a functional limitation to the claims (i.e., the photoreceptor has certain characteristics when wet developed), however because the limitation is indefinite for the reasons given in the section 112 rejection above, it is unclear how the limitation further defines the claimed photoreceptor. The response states that hydrocarbon carrier liquids contact the photoreceptor in wet development but as seen in Watanabe, Jacob, and Greig no hydrocarbon solvent is required to contact the photoreceptor (see Watanabe's carnauba wax in col. 5, l. 5; Jacob's Figure 1; & Greig's siloxane liquid). The remarks are not persuasive because the method of using the photoreceptor is not limited in the manner asserted in the response, and, as discussed above, the claims are indefinite.

Further, the binder resin used in Katsukawa's photoreceptor is the same as used in the photoreceptor of the instant claims. Because of this feature, it appears that a photoreceptor having the same polyester would inherently have the same liquid development characteristics claimed. There is no evidence of record to show that the prior art photoreceptors do not have the claimed functional characteristics for liquid development. There is also no evidence to show an unexpected result over the prior art.

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Applicants also traverse the rejection because the present invention is limited to esters (response p. 23, bottom). The formulas in the supporting Kanamira reference do not anticipate the formula (1). This position has been considered but is not found persuasive because the supporting art has not been relied upon for the claimed polyesters having units of the formula (1). The supporting art discloses a specific group of antioxidants that are known to be effective in photoreceptors while the primary reference calls for antioxidants as useful in the photoreceptors. The rejection is still seen as proper and is maintained.

Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota *et al.* in US Patent Application Publication 2004/0009419 in view of Kanamura *et al.* in US Patent 6,043,334.

Applicants traverse this rejection because of the certified translation of the priority document. The Examiner has carefully considered the priority document to determine if the previously rejected claims are described by the document within the meaning of section 112, 1st paragraph. A review of the priority document shows that it does not describe the electrophotographic cartridge and image forming apparatus of claims 17-20. Applicants state that pages 7 and 29 disclose that devices can be prepared with the photoreceptor of the invention but the specific structure of the process cartridge (e.g., charging device, developing unit, cleaning device, etc.) and image forming apparatus (e.g., charging device, irradiating device, developing unit, transfer device) are not disclosed.

Applicants' remarks concerning the provisions of section 103(c) are noted. However, applicants have not stated that the applied publication's subject matter and the claimed invention were, at the time the claimed invention was made, owned by the same person or

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subject to an obligation of assignment to the same person. The statement made by applicants is not sufficient to obviate the rejection.

The rejection is maintained for the claims indicated above.

Conclusion

The double patenting rejection has been withdrawn because the copending application is abandoned.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher RoDee whose telephone number is 571-272-1388. The examiner can normally be reached on most weekdays from 6:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



CHRISTOPHER RODEE
PRIMARY EXAMINER

cdr
22 December 2005